



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

SEP 14 2004

DOT-E 8795
(EIGHTH REVISION)

EXPIRATION DATE: August 31, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Taylor Wharton
Huntsville, Alabama
2. PURPOSE AND LIMITATIONS:
 - a. This exemption authorizes the manufacture, mark, sale and use of non-DOT specification cylinder conforming with all regulations applicable to a DOT specification 4B240ET, except as specified herein, for the transportation in commerce of the materials authorized by this exemption. This exemption provides no relief from any Hazardous Materials Regulation (HMR) other than as specifically stated herein.
 - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.302a(a), 173.304a(a), 173.305(a) and 175.3 in that non-DOT specification cylinders are not authorized except as specified herein.
5. BASIS: This exemption is based on the application of Taylor Wharton dated August 20, 2004, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Bromotrifluoromethane or Refrigerant gas, R13B1	2.2	UN1009	N/A
Fire extinguishers containing compressed or liquefied gas	2.2	UN1044	N/A

7. SAFETY CONTROL MEASURES:

PACKAGING - Packaging prescribed is a non-DOT specification cylinder made in conformance with DOT Specification 4B240ET (§§ 178.35 and 178.55) except as follows:

§ 178.35(c) *Duties of inspector.*

(Add) (5) Prior to initial production of any design or design change, verify that the design qualification tests prescribed in § 178.55(d) of this exemption have been performed with acceptable results.

§ 178.35 (f) *Marking.*

(1) Each cylinder must be plainly and permanently marked by stamping on the cylinder shoulder, top head, or neck as follows:

(i) DOT-E 8795 followed by the service pressure and the letters "ET" for example DOT-E 8795 -350ET.

(ii) Marking must comply with § 178.35(f) except as specified above.

(2) Marking stamped into the sidewalls of cylinders having a service pressure of 150 psi or less is permitted only if all of the following conditions are met:

(i) Wall stress at test pressure may not exceed 24,000 psi.

(ii) Minimum wall thickness may not be less than 0.090".

(iii) Depth of stamping may not be greater than 15 percent of the minimum wall thickness, but at no time may it exceed 0.015".

(iv) Maximum outside diameter of cylinder may not exceed 5".

(v) If the carbon content exceeds 0.25 percent, the cylinder must be stamped before the required heat treatment.

(vi) Stamping must be adjacent to top head.

§ 178.55(a) *Type, spinning process, size and service pressure.*

(i) Cylinders must be made from electric resistance welded tubing complying with § 178.55(b) of this exemption. Cylinders closed by spinning process are authorized.

(ii) Water capacity may not exceed 180 pounds (4900 cubic inches) nominal; service pressure may not exceed 500 psi.

§ 178.55(b) *Steel.*

Open hearth, basic oxygen, or electric steel of uniform quality in compliance with ASTM A53 or A135 specification or as specified in 49 CFR Part 178, Appendix A, Table I is authorized.

§ 178.55(d) *Manufacture.*

* * * except heads attached by welding or brazing are not authorized.

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- (1) Circumferential seams are not allowed.
- (2) * * *
- (3) Tubing not in compliance with ASTM pressure application must be qualified in accordance with ASTM pressure tube specification A135.

(Add)

(4) Each new design and any significant change to any acceptable design must be qualified for production by testing prototype samples as follows:

(i) Twelve cylinders must be fabricated to the proposed design. These cylinders must be subjected to the tests and inspections prescribed in this exemption without any failure.

(ii) Three of the above cylinders must be pressure cycled from less than 100 psig to the minimum prescribed test pressure (see Section 178.55-14(b) of this exemption) at a rate not to exceed 10 cycles per minute for 10,000 cycles without any failure.

(iii) A copy of the design qualification test results must be submitted to the OHMEA prior to the first shipment.

(5) A significant change means a 10% or greater change in cylinder wall thickness, service pressure or diameter; a 50 percent change in water capacity provided that the diameter, steel and wall thickness remains the same; or any change in material or end design.

(6) Material furnished by new suppliers must be subjected to vendor qualification testing sequence furnished to the OHMEA in the September 29, 1982 letter.

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§ 178.55(f) *Wall thickness.*

(1) The wall stress may not exceed 35,000 pounds per square inch for cylinders made from Appendix A Table I ASTM A53 or A135 specification steels. Minimum wall 0.090" for any cylinder over 6" outside diameter.

(2) Calculation must be made by the formula:

$$S = [P(1.3D^2 + 0.4d^2)] / (D^2 - d^2)$$

where

S=wall stress in pounds per square inch;
P=minimum test pressure prescribed for water jacket test or 450 pounds per square inch whichever is the greater;
D=outside diameter in inches;
d=inside diameter in inches.

§ 178.55(g) *Heat treatment.*

(1) The completed cylinders must be uniformly and properly heat-treated prior to tests and after all forming and welding operations.

(i) Cylinders made from ASTM A53 or A135 steel with integral formed heads or bases must be subjected to a normalizing operation. Normalizing and brazing operations may be combined provided the operation is carried out at a temperature in excess of the upper critical temperature of the steel.

(ii) Cylinders made from other materials must be heat treated by any suitable method in excess of 1100°F except that liquid quenching is not permitted.

(2) Heat treatment is not required after welding weldable low carbon steel parts to attachments of similar materials which have been previously welded to the cylinder and properly heat-treated, if such subsequent welding does not produce a temperature in excess of 400°F on the cylinder.

§ 178.55(h) *Openings in cylinders.*

(1) Openings are permitted only in the heads and must be centered.

(2) Size of opening may not exceed one-half of the outside diameter, nor 2.625 inches, whichever is smaller.

(3) All openings must be threaded. Threads must be in compliance with the following:

(i) Each thread must be clean cut, even, without any checks, and to gage.

(ii) Taper threads, when used, must be the American Standard Pipe Thread (NPT) type in compliance with Federal Standard H-28/7; or the National Standard Gas Taper Thread (NGT) type in compliance with Federal Standard H-28/9.

(iii) Straight threads, when used, must be the National Gas Straight Thread (NGS) type in compliance with Federal Standard H-28/9.

§ 178.55(i) *Hydrostatic test.*

(1) thru (4) * * *

(5) Each 500 cylinders or less successively produced each day must constitute a test lot for the purpose of the burst test. One cylinder selected from each lot must be pressurized to destruction. If test cylinder bursts below 4 times the service pressure, or if cylinder passes the burst test but failure initiates in the weld or heat affected zone thereof the test lot must be rejected.

(i) If failure initiates in a localized defect away from any weld, 2 additional samples may be taken from the same lot and must be subjected to the burst test. If either cylinder fails, the lot must be rejected.

(ii) The rejected lot may be requalified without reheat treatment by testing each cylinder in accordance with the nondestructive test in ASTM A135 paragraph 11.

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8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

b. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this exemption and the HMR.

c. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this exemption must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.

e. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.

f. Division 2.1 gases may not be transported aboard passenger-carrying aircraft.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, cargo aircraft only, and passenger-carrying aircraft.10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel or aircraft used to transport packages covered by this exemption. The shipper must furnish a current copy of this exemption to the air carrier before or at the time the shipment is tendered.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- o Persons operating under the terms of this exemption must comply with the security plan requirement
- o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued in Washington, D.C.:



Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

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(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.
Attention: DHM-31.

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Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemptions> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: KFW/sln